15.0 Socioeconomics

15.1 Introduction

CEQA permits and NEPA requires that a project be evaluated to determine if it will have direct or indirect social or economic impacts (CEQA Guidelines, Section 15131; and CEQ NEPA Regulations, 40 CFR 1508.8(b)). These impacts are primarily related to changes in population, housing, employment or income created by the proposed project. In addition, the project may have impacts on the social well-being of residents and the nature of the communities involved. The CEQA Guidelines, Section 15131, provide the following guidance:

> *"(a) Economic or social effects of a project shall not be treated as significant effects on the environment. An EIR may trace a chain of cause and effect from a proposed decision on a project through anticipated economic or social changes resulting from the project to physical changes caused in turn by the economic or social changes. The intermediate economic or social changes need not be analyzed in any detail greater than necessary to trace the chain of cause and effect. The focus of the analysis shall be on the physical changes.*
>
> *(b) Economic or social effects of a project may be used to determine the significance of physical changes caused by the project..... Where an EIR uses economic or social effects to determine that physical change is significant, the EIR shall explain the reason for determining that the effect is significant."*

Under NEPA, socioeconomic effects generally do not require the preparation of an EIS by themselves, but should be discussed when one is prepared.

This chapter on socioeconomic impacts gives a brief summary of the existing socioeconomic setting of the ISDP project and then examines potential impacts due to the construction and long-term operation of the new ISDP facilities. This analysis also covers the SWP service areas, which would be affected by additional water deliveries .

15.2 Environmental Setting/Affected Environment

This section first discusses the socioeconomic setting of the proposed ISDP project area and study area, followed by a brief overview of the SWP service areas. More detailed socioeconomic data, sources and discussions are contained in Appendix 8.

15.2.1 Project Area/Study Area

Project Area. The proposed ISDP facility additions would be located primarily in San Joaquin County, within the Delta Planning Area (San Joaquin County General Plan designated planning area). Clifton Court Forebay and the proposed new intake site are located in the eastern portion

of Contra Costa County, along the border of San Joaquin County. The project area is in the rural, unincorporated portions of the two counties where agriculture is the primary activity and only sparse, low-density residential development exists in the immediate vicinity (with the exception of the community of Discovery Bay near Clifton Court Forebay).

- *Historical Background And Setting Of The Project Area*

The Delta region with its vast network of navigable waterways has played an important role in the history of California. The diverse backgrounds of settlers to this area, the unique physical setting and the tremendous man-made changes have created a region with a special character and appeal unmatched in other areas of the state. For many decades, it has been a popular recreational and tourist destination.

The first outsiders to the region were Spanish explorers in 1772. They found flooded rivers and large, mosquito-ridden swamps, which were home to a number of Indian settlements. In the 1820s, fur trappers and traders came to the area. They were soon followed by early settlers in the 1840s and fortune seekers in the big boom of the 1849 gold rush. The river ways soon became filled with boats carrying passengers, food and equipment between San Francisco, Stockton and Sacramento. Small communities sprang up along the Delta route, many of which still exist today.

The Delta region began to change dramatically after Congress passed the Swamp and Overflow Act of 1850. This Act allowed individuals to buy up large tracts of marshlands at $1 an acre and reclaim them for agricultural purposes. Over the next few decades, the Delta region was transformed by the continual construction of levees throughout the waterways. The early levees were built by hand by Chinese laborers, who had come to the area after completing work on the transcontinental railroad in 1869. Over the years more and more sophisticated dredging and hauling equipment was developed to build and rebuild the levees ever higher and stronger. By 1930, over 700,000 acres of land had been reclaimed and 55 man-made islands created.

The rich soils allowed agriculture to flourish and a wide variety of crops were grown. The river remained the main transportation route for many years with as many as 200 paddle wheelers crossing the waters over time. The boats stopped at the numerous small landings along the way to pick up agricultural produce, deliver mail and other goods and to carry passengers. The riverboat era began to end by the 1920s, when expansion of the railroads and the introduction of cars proved too much competition. The last regular riverboat service ceased just before World War II.

Up until the 1950s, the Delta region regularly flooded in the winters, while water flows dwindled dramatically in the summer. The variation in flows was responsible for substantial damage and economic losses over time to the farmers and small communities along the waterways. This situation was substantially altered over the next few decades with the construction of a network of dams, reservoirs and diversions upstream as part of both the federal Central Valley Project and the State Water Project. The area has become safer and more stable, which also has made it more attractive for development.

Throughout the development of the Delta region, immigrants were a major source of labor and helped form the social character of the region. The early Chinese settlers were followed by people of Japanese, Portuguese, Italian, Filipino, and Mexican origin. These diverse populations helped build the towns, run the stores and farm the lands. Today the Delta region remains largely agricultural as well as a popular recreation and sight seeing destination. Boating along the waterways is a major activity with stops at the numerous boat docks and restaurants. The area has retained much of its rural, rustic character amid growing development pressure from the surrounding metropolitan and suburban areas.

The project area is located in the unincorporated rural portions of the San Joaquin and Contra Costa counties, however, development pressures are not far removed. Nearby communities are expanding rapidly, increasing the demand for water and the use of the rivers and channels for recreational purposes. For example, a large retirement community is now being built in Brentwood, the Discovery Bay development is expanding rapidly, the Mountain House residential development near Tracy is close to final approval, and a developer has proposed a major theme park surrounding the river at the site of the proposed Old River fish control structure.

Study Area. For the purpose of the socioeconomic analysis, a larger study area surrounding the project vicinity was defined, which includes all of San Joaquin County and the eastern portions of Alameda and Contra Costa Counties, as identified in the respective General Plans. This includes the major surrounding residential development and economic base relevant to the proposed ISDP.

Generally, the study area is in a part of California that has been growing rapidly for the past ten years; over the next twenty years, this area is projected to be one of the fastest growing portions of the state. Population growth was initially fostered by the availability of affordable housing, drawing people from the higher cost San Francisco Bay Area and Sacramento regions. Over time, the increase in population and housing development has led to the location of businesses in the study area, creating a growing and diversified economic base. There are still a large number of people who commute to the Bay Area and Sacramento, but this is expected to decrease over time as job opportunities continue to grow in the study area.

Most of the growth in the study area is occurring in the incorporated cities or immediately around the cities (within the cities' spheres of influence). However, the nature of many small rural towns is being transformed as they become larger suburban communities. One of the major development issues in the study area has been how to adequately manage growth while protecting prime agricultural lands and other natural resources. Growth in portions of the study area is constrained by the availability of water.

The following section briefly summarizes existing and projected population, housing, income and employment within the study area.

- *San Joaquin County.*

The San Joaquin County General Plan divides the county into eleven planning areas. All of the proposed project additions, except the new intake at Clifton Court Forebay, are located in the southern portion of the Delta Planning Area.

San Joaquin County had a population of 480,628 in 1990. Approximately 75 percent of the household population lives in the incorporated cities, and of this number, nearly 60 percent are in Stockton. The unincorporated population is concentrated in the Planning Areas of Stockton, Manteca, Lodi, Tracy and Lockeford. The Delta Planning Area had only 2,883 residents in 1990, making up just 0.6 percent of the county population.

The county expects a steady increase in population over the next twenty years of 62 percent (or 3.1 percent average annual), which is well above the projected statewide increase of 42.5 percent. This is based on the County's growth policies, the availability of low cost land and the current number of planned residential developments. The General Plan designates that most of this growth will continue to be concentrated in and around the incorporated cities in order to promote higher density development and protect prime agricultural land. The Delta Planning Area is projected to have a small increase in population (1 percent), for a total 3,200 people in the planning area in the year 2010.

In 1990, there were a total of 166,274 housing units available resulting in an overall vacancy rate of 4.9 percent. Approximately 70 percent of the housing units are single family dwellings, 8.0 percent are structures with 2-4 units, 15 percent are apartments with over five units and five percent are mobile homes.

The City of Stockton accounts for 44 percent of the housing stock in the county, while the Delta Planning Area represents only 0.36 percent. Overall, there are 2.94 persons per household in the county and 2.67 in the Delta Planning Area. The median rental price in San Joaquin County was $417 per month in 1990 and the median home value was $121,700.

In 1989, the median household income for San Joaquin County was $30,635 and per capita income was $12,705.

There were a total of 178,800 people employed in 1989, with the largest number of jobs (32,600) in the services sector. Employment in San Joaquin County has been shifting away from agriculture and related jobs in food processing to a more diversified economic base. Recent years have seen employment growth in finance, insurance, and real estate; fabricated metals; electronics; furniture and fixtures; and trucking, warehousing and transportation. However, agriculture and related industries will continue to be a major force in the economy, with the county ranking ninth in the state for the value of agricultural production (1992).

The county has suffered a high unemployment rate for many years, which has been well above the statewide unemployment rate. In January 1995, the county rate was 13.5 percent, compared

to 8.7 percent for the State. Wages in San Joaquin County have also been well below the State average.

A 57 percent growth in employment is expected from 1990 to 2010 for San Joaquin County. The majority of these jobs will be located in Tracy, Manteca, Lathrop and Lockeford. In the future, the service sector is expected to show the greatest increase in jobs, while agriculture and mining decrease substantially. The economy will continue to diversify and the county is expected to attract some large manufacturers given the proximity to the Bay Area, Sacramento and other San Joaquin Valley markets. Future trends for economic growth affecting employment include: diversification and modernization of the food processing industry; commercial and retail development to serve the growing population and housing developments; regional subcenter for manufacturing and distribution of goods to surrounding metropolitan markets; and Pacific rim trade and foreign investment.

- *Contra Costa County*

The Contra Costa County General Plan recognizes three distinct areas for planning purposes: West County, Central County and East County. East County includes two sub-areas, the Pittsburg-Antioch area and "Other East County." Clifton Court Forebay and the proposed new intake are located on the eastern border of the "Other East County" planning sub-area, not far from the communities of Byron and Discovery Bay. In 1990, Contra Costa County had a population of 803,732, with 165,003 in East County.

Contra Costa County is expected to have a population of 1,096,300 in 2010, with the East County area growing to approximately 303,900. The population in East County will grow by 84.2 percent during this period, placing pressure on the need for water and many other basic services.

There were a total of 314,723 housing units in the county in 1990, with 60,212 units in East County. Approximately 75.6 percent of the East County residential units were single-family homes, seven percent were condominiums or townhouses, 13 percent were apartment units and 4.4 percent were mobile homes.

In 1990, the average household size in the county was 2.57 and 2.93 in East County. In East County, 68.8 percent of the households owned their home and 31.2 percent were renters. The vacancy rate for rental units in the county was 4 percent, while in the East County planning area the rate was 7.2 percent. The median rent in the Contra Costa East County planning area was $555 per month versus the county average of $625. The median housing value for the East County area was $153,600.

A major portion of the growth in Contra Costa County is expected to occur in the East County are over the next twenty years. The county expects 414,020 new housing units by 2010, with 111,680 units in the East County. This represents a 37.9 percent increase in housing countywide and 83 percent in East County.

In 1989, the median household income in East Contra Costa County was $40,359 and the per capita income was $14,956.

Employment in the East County area is concentrated in the Pittsburg-Antioch sub-area, including major petroleum refineries and other manufacturing businesses. In the other areas of East County, employment is limited to commercial/retail jobs (supporting residential communities) and a small amount of agricultural employment.

Over the 1990-2010 period, jobs in East County are projected to increase by 46,050, for a total of 79,860. This is approximately one-third of the new jobs projected for Contra Costa County during this period. This represents an increase of 136 percent, versus a growth rate of 41 percent for the county as a whole. The job growth is expected to be concentrated in services (226 percent), retail (149 percent), and manufacturing/wholesale (81 percent).

- *Alameda County*

Alameda County is divided into two planning areas: West County and East County. East County includes the Livermore-Amador Valley, in which the incorporated cities of Dublin, Pleasanton and Livermore are located. This area is also part of the Tri-Valley region, which also includes the San Ramon Valley in Contra Costa County.

In 1990, Alameda County had a total population of 1,276,702. The East County Planning Area had a population of 135,835, with 96 percent of the people in this area residing in the three incorporated cities. This area offers some of the lowest cost housing in the greater Bay Area region.

Alameda's East County is expected to experience significant growth over the next twenty years with the population in 2010 forecast to be 240,600. This represents a 77.1 percent increase in population, for an annual average growth rate of 3.9 percent. The East County Area Plan adopted in May 1994, states that the County strives for compact, managed and balanced growth, in conjunction with the preservation of natural resources.

Alameda County had a 1990 housing stock of 479,518 units, with 49,961 units in the East County area. The overall vacancy rate was 4.1 percent. Household size in the East County was 2.75 persons per household. Approximately 68 percent of the housing units in East County are single family dwellings with 32 percent multi-family units.

In East County, 32 percent of the households are renters with a median rental price of $729 per month in 1990. The median value of homes purchased was $253,500. While these prices are lower than other parts of the Bay Area, they are still not affordable for many of the employees in East County. As a result, many employees commute from San Joaquin County and other lower cost areas.

In 1989, the median household income in East Alameda County was $53,353 and the per capita income was $21,237.

East County is expected to see rapid growth and a high demand for housing. An additional 47,430 homes are forecast for 2010, representing a 94 percent increase in the number of residential units (in conjunction with a 77.1 percent increase in population). Major planning issues involve the trend toward increasing housing costs and the ability to provide enough "affordable" housing to match the income levels of local employees.

In 1990, Alameda's East County employed 71,960 people, with most of these jobs located in the three cities and their spheres of influence. Pleasanton had the largest employment (31,110), followed by Livermore (25,230), Dublin (13,000), and the remainder of East County (2,620).

Over the next twenty years, economic growth in the Bay Area region is expected to continue the shift away from jobs in manufacturing to jobs in the service industries. A majority of the economic growth in Alameda County over this period will occur in the East County/Tri-Valley area. The number of jobs in East County is expected to grow to 140,310 by the year 2010. This represents a 95 percent increase or a 4.7 percent annual increase in employment, substantially higher than 1.6 percent expected for the Bay Area region. The draw to the East County area is credited to the low cost and availability of raw land, the availability of existing building space for lease and the presence of a labor market.

15.2.2 SWP Service Areas

The SWP provides water to agricultural, industrial and municipal users throughout much of the state. Major water delivery systems, such as the SWP and the Central Valley Project (CVP), have been essential components in California's extensive growth and development. Water transfers from northern California have also fostered agricultural production in the Central Valley and southern California, making the state one of the leading producers in the country.

The 29 long-term water supply contractors of the SWP are organized into six service areas: Feather River, North Bay, South Bay, Central Coast, San Joaquin Valley, and Southern California. These areas vary widely in size, location, climate, and population. The Feather River service area will not be affected by ISDP.

This section presents general background on population, employment, housing and income for the SWP service areas. Because of limitations to available data, most information is compiled on a countywide basis, while in actuality some of the service areas include only portions of certain counties. However, countywide data is representative of the general demographic and economic trends for the service areas. Population data for 1990 and projections for 2020 by the specific service area boundaries are used for the purpose of discussing the long term impacts of additional water supplies on the service areas. Thus, the reader should note there are differences in the population data quoted in different sections for several service areas in 1990 and 2020 (South Bay, San Joaquin and Southern California).

In addition, this section examines water supply and demand for the SWP service areas that will be affected by ISDP. Water supply and demand numbers were prepared by DWR staff in October 1995 based on data used in the DWR publication, Bulletin 160-93: California Water Plan Update, November 1993. Information in Bulletin 160-93 is aggregated by the ten

hydrologic regions in the State, while the information used here is aggregated by the SWP service areas.

- *North Bay Service Area*

The North Bay service area includes all of Napa and Solano counties, which are located in the northern portion of the San Francisco Bay Area. SWP contractors are the Napa County Flood Control and Water Conservation District (FC and WCD) and the Solano County Water Agency. Water deliveries go primarily to the cities of Napa and American Canyon in Napa County, and to the cities of Benicia, Fairfield, Suisun, Vacaville, and Vallejo in Solano County.

In July 1994, the estimated population was 119,000 for Napa County and 375,300 for Solano County. Napa County population is projected to grow by 25.4 percent to 139,900 over the twenty year period 1990 to 2010, while Solano County expects a population increase of 61.3 percent with a total of 557,400 residents in 2010.

Most of the growth in Napa County is expected to occur in the incorporated cities, particularly in the City of Napa and the newly incorporated American Canyon (1992). Napa County has experienced relatively moderate population increases in the past due to local government policies to limit growth. Growth has also been concentrated in the existing urban areas to protect prime agricultural lands and other natural resources.

Currently, it is projected that over the 1990-2010 period the number of households in Napa County will increase by 31.7 percent. However, projections for continued moderate growth in Napa County could be revised once it is known how much growth will be allowed in American Canyon. The new city is currently in the process of preparing a General Plan. There is a potential that substantial growth may occur in American Canyon and in the Napa Airport Industrial Area (in the unincorporated portion of the County). Napa communities are also expected to receive secondary growth as a spill over from growth in Solano County. Substantial growth in Napa County will place severe stress on major infrastructure and services (including water supply, sewer and roads).

The Napa County economy is increasingly centered around grape-growing, wine-processing and associated tourism (retail trade, hotels, and restaurants). Between 1990 and 1995, the area has experienced a substantial gain in service related jobs, while there were losses in manufacturing and wholesale trade employment. However, in the 1995-2010 period the county is expected to gain over 22,000 jobs, with the highest percentage in services as well as additional manufacturing and wholesale trade jobs. While population is currently projected to increase by only 25.4 percent during the 1990-2010 period, employment is expected to increase 51.8 percent during this same time.

Solano County has experienced significant growth in population and employment in the past due to its location between Sacramento and the San Francisco Bay Area. In the ten year period of 1980 to 1990 alone, the population increased by 45 percent. Substantial growth is expected to continue, well above the statewide average.

The economy of Solano County has grown and diversified in recent years. There is a strong agricultural sector mainly in field crops, fruits and nuts, and livestock. There are also major employers in the manufacturing and wholesale trade sectors. Heavy water-using industries include two meat packing companies and a cannery in Dixon, a refinery in Benicia, a brewery in Fairfield and two food processors in Vacaville. Extensive regional discount shopping centers have been opened in Vacaville. Finally, there are two large military bases in the county, however, the Mare Island Naval Base is scheduled for closure.

Economic growth in Solano County is expected in each of the major sectors, with manufacturing and wholesale trade employment projected to almost triple by 2010. Retail trade and service employment will also experience substantial growth of 100 percent and 86 percent respectively. Overall, the county will gain about 75,000 new jobs over the 1990 to 2010 period.

This growth is expected to place substantial pressure on the county and cities to plan carefully for new development. Water supply and distribution is a significant constraint in the northern part of the county, which may affect the ability of this growth to be realized.

The North Bay service area represented seven percent of the total net water demand within the overall SWP service area in 1990. The North Bay service area average year water demand of 728 thousand acre feet (taf) per year (63 taf for Napa and 665 taf for Solano) is dominated by the agricultural sector. In 1990, with average year conditions, agricultural demand made up 62 percent of the total demand. At the same time, urban demand represented 16 percent and environmental demands (e.g. wetlands restoration, minimum river flows) 21 percent of total demand. By the year 2020, urban uses are expected to increase to 25 percent of total demand with continued population growth. Agricultural use is expected to decline to 56 percent of total demand, while environmental uses remain unchanged.

The North Bay service area presently has adequate water supplies under average conditions and this is expected to be the case in the future. However, substantial shortages occur under drought conditions. The majority of water supply in 1990 (68 percent) came from local surface water and groundwater pumping. Federal projects supplied 28 percent, while the SWP supplied only 4 percent of the service areas total water. The SWP will supply approximately six percent of total supply by 2020.

- *South Bay Service Area*

The South Bay service area includes all of Santa Clara County and the eastern portion of Alameda County. The contractors are the Alameda County Flood Control and Water Conservation District, Zone 7 (serving all of East Alameda County), the Alameda County Water District and the Santa Clara Valley Water District.

In July 1994, Alameda County had an estimated population of 1,352,000 and Santa Clara County had 1,591,900 residents, representing the two most populous counties in the Bay Area region. Alameda's population is expected to increase by 21.7 percent over the 1990 to 2010 period to 1,561,900. Santa Clara's population growth over this period is estimated to be 22.5 percent for a

total of 1,839,700 residents. Both of these counties represent large, well-established urban areas that have been growing steadily since 1960.

Since 1980, Alameda County growth has been shifting away from the highly urban West County on the Bay to new suburban development in the East County, including the Livermore-Amador Valley (the cities of Dublin, Pleasanton and Livermore). While the twenty year population growth rate for the county is 21.7 percent, the East County planning area has a projected growth rate of 77.1 percent. This area alone is expected to add about 104,765 new residents and 51,468 housing units.

Job growth in Alameda County from 1990 to 1994 has been very small due to the economic recession. The county will suffer from several military base closures in the region, including the Alameda Naval Air Station. However, during the 1995 to 2010 period job growth is expected to recover. The northern portion of the county is expected to continue to lose manufacturing jobs, which will most likely be replaced with service jobs. The southern portion and East County are expected to increase the number of manufacturing and wholesale trade jobs, along with substantial increases in retail employment. The East County is expected to capture 38 percent of the counties overall job growth through 2010.

West County is expected to reach buildout for residential development around 2000, particularly right along the Bay. As a result, most of the new housing and population growth will be in the Central and East County areas. However, there are infrastructure constraints including sewer treatment and outflow capacity, and the availability of water. The County is currently studying water storage and other water recovery options as alternatives if future SWP entitlements to Zone 7 can not be met.

From 1990 to early 1994, Santa Clara was hard hit by the economic recession and lost over 80,000 jobs. This type of job loss is unprecedented and represents a major restructuring of the economy. It is expected that beginning in 1995, the county will begin to recover slowly and by 2010 will add 182,000 jobs. However, the electronic and computer industries will not bring in the large job increases as once predicted due to industry restructuring, decentralization and a decline in market share. Cuts in defense spending and cutbacks in transportation equipment manufacturing have had a major effect on employment. It is projected that the county's employment will shift to business, engineering, research and development and professional services jobs. More than half of the new jobs are expected to be in the City of San Jose.

Santa Clara County has always had an imbalance of jobs versus housing, with most home prices being too expensive for the majority of employees to afford. The result has been long commutes from other surrounding counties for most employees and the resulting transportation congestion. The 1990 to 2010 period is expected to see some improvement in this area as new households increase by 21 percent. The county will gain 337,500 persons and 109,420 households, primarily in the City of San Jose. The southern portion of the county around Gilroy and Morgan Hill is a potential high growth area if infrastructure constraints on sewer treatment and outflow capacity can be overcome.

Water demand in 1990 under average conditions was 509 taf, of which 435 taf or 85 percent went to urban demand. Agricultural demand was 63 taf, representing only 12 percent of total water demand. It is expected that by 2020 urban demand will increase to 618 taf, while agricultural demand will remain unchanged. However, conservation savings of 81 taf will help reduce the overall demand by this time to 613 taf.

The SWP is a major supplier of water to the South Bay service area, providing approximately 30 percent of the total water supply presently. Future water supplies from the SWP will remain about the same with a small 2 taf reduction by 2020. The service area is expected to increase its groundwater pumping substantially to meet new demands. Currently, the service area has adequate supplies to meet demand under average year conditions, but experiences a 22 percent shortfall with draught conditions. By 2020, there is a small shortfall (4 percent) under average year conditions and a shortage of 36 percent of demand with drought conditions.

- *Central Coast Service Area*

The Central Coast service area includes all of San Luis Obispo and Santa Barbara counties. The SWP contractors are the San Luis Obispo County Flood Control and Water Conservation District and the Santa Barbara County Flood Control and Water Conservation District. These contractors do not currently receive any of their SWP entitlement water pending completion of the Coastal Branch, Phase II aqueduct and related delivery systems. The project has been approved and is currently under construction. It is expected to be in operation by December 1996.

San Luis Obispo County had a July 1994, estimated population of 234,500 and Santa Barbara had approximately 394,400 residents. San Luis Obispo's population is projected to increase by 40 percent between 1990 and 2010 to a total of 306,800, while Santa Barbara's population should reach 484,800 in this same period for an increase of 30.6 percent. This is on par with the overall growth rate for the State. In recent years, growth in both counties has been constrained by a number of factors, including the need for additional water supplies.

Households are expected to increase by 44.9 percent from 1990 to 2010 in San Louis Obispo County. Santa Barbara expects a smaller increase of only 21.8 percent over the same period.

The economic base of both these counties includes a strong agricultural sector. Santa Barbara ranked 14th among the counties in the state in 1992, with $455,002,000 in production value, while San Luis Obispo ranked 18th with $276,762,000 in production value. Major crops include broccoli, lettuce, carrots, strawberries and wine grapes, along with cattle grazing and milk production.

Oil production and transportation facilities both on and off-shore are important features of the economy in both counties. In addition, San Luis Obispo has several electric power plants. The largest employment sectors are retail trade, services, and government, making up about 60 percent of employment in both counties. The government sectors include a State University campus in San Luis Obispo and a University of California campus in Santa Barbara. In addition, Santa Barbara has Vandenberg Air Force Base.

Both of these counties have suffered with the recent recession in California. Santa Barbara lost jobs from 1990 through 1993, but has seen an increase in employment in 1994. San Luis Obispo had 2,700 less jobs at the start of 1994 then in 1990. Much of the loss of employment is due to cutbacks in federal government spending and resulting losses in the high technology and electronic industries. A drop in retail trade and service jobs has also resulted from reductions in the tourist trade in both counties.

The economy is beginning a slow recovery in California, which will begin to help San Luis Obispo and Santa Barbara. These counties are expected to have substantial increases in retail trade and service employment over the next ten to fifteen years, with modest increases in manufacturing.

San Luis Obispo and Santa Barbara counties do not import any water from outside the area and currently have severe water shortages. Both counties have been relying on groundwater overdraft for a number of years. San Luis Obispo has a SWP entitlement of 25,000 acre feet per year (af/yr) and Santa Barbara has 45,486 af/yr. However, recent decisions by both counties have changed delivery levels to 41,830 af/yr and 42,986 af/yr for San Luis Obispo and Santa Barbara counties, respectively. Once the Phase II aqueduct and other delivery systems are completed, both counties will be able to receive their water entitlements.

Within the Central Coast service area, urban water uses in an average year represented 21 percent of demand in 1990 and agriculture made up 75 percent of demand. By 2020, urban uses increase to 30 percent of water demand and agriculture drops to 69 percent. This reflects the projected 34 percent growth in population in Santa Barbara and San Luis Obispo counties.

Water supplies over the 1990 to 2020 period will change primarily due to the elimination of 176.3 taf of groundwater overdraft (1990). In addition, the service area will begin receiving 52 taf of SWP water deliveries in 1996 or 1997, with completion of the Coastal Branch Phase II aqueduct currently under construction. The service area has long held a contract for SWP entitlements, but there was no physical means of conveying the water from the California aqueduct to the counties. The new coastal aqueduct connection was finally approved in 1993 and is currently under construction. However, the area will still have a 137.7 taf shortage by 2020 representing 29 percent of demand. Water shortages have been an issue contributing to constrained growth in the two counties for a number of years.

- *San Joaquin Valley Service Area*

The San Joaquin Valley service area is located primarily in the southern portion of the valley and consists of all of Kings County and portions of Kern County. Contractors include the County of Kings, Devil's Den Water District, Dudley Ridge Water District, Empire West Side Irrigation District, Kern County Water Agency and Tulare Lake Basin Water Storage District. In addition, the service area includes a small agricultural district (Oak Flat) in Stanislaus County, near the City of Patterson.

The San Joaquin Valley service area is primarily a sparsely populated, arid area characterized by large farms. In July 1994, the population of Kern County was 622,900 with about one-third of the population living in the City of Bakersfield. Kings County had a population of only 115,700, with about 69 percent of the population living in the four incorporated cities (Hanford, Lemoore, Corcoran and Avenal). Both counties are expected to grow rapidly over the 1990 to 2010 period, with Kern's population increasing by 88.8 percent to a total of 1,037,700. Kings County should increase its population by 64.9 percent over the same period, for a total of 168,900 people.

This region is one of the most productive agricultural areas in California. In 1992, Kern County ranked fourth in the State for the value of agricultural production with about $1.5 billion and Kings County ranked eleventh with about $800 million. Agricultural production includes a wide variety of orchard, vineyard, truck and field crops.

The economy of Kern County is also heavily influenced by major oil production fields. Over the past ten years, the economy has diversified somewhat with sizable employment in manufacturing, retail trade, services and government.

Kings County is mostly farmland with 88 percent of the acreage in agricultural uses. Other major employers include the Lemoore Naval Air Station, two state prisons, several agricultural processing plants, a hazardous waste treatment and disposal facility, and an automobile tire manufacturer. In addition, there are jobs in retail and services that support the residential population and households.

The economies of both counties are currently quite depressed, with unemployment reaching 14.6 percent in Kern and 14.9 percent in Kings in early 1994 versus a statewide rate of 9.1 percent. Employment has declined since 1990 in both counties, but early 1994 figures show modest increases in the number of jobs.

Future economic growth in Kern County is expected to continue to diversify with strong growth in the retail trade and service sectors, although, agriculture and oil production will remain the largest sectors. Local government policies have been adopted to encourage new residential growth, housing development and economic expansion in existing urban areas to protect prime agricultural lands.

Kings County will remain largely dependent on agricultural production with limited expansion in retail trade and services to support a growing regional population.

The San Joaquin service area has the second largest demand for water within the SWP service territory, representing 21 percent of the SWP's total demand. At the same time this area has only two percent of the population within the SWP service territory. In 1990, the majority of water in San Joaquin service area was needed for agricultural production (or 92 percent of the demand with an average water year). By 2020, the demand for water in the service is expected to decline slightly, with to the reduction of agricultural land in production. Agricultural water demand is reduced by seven percent from 1990, due primarily to a lack of water supply. This decline is also due in part to urban development and other environmental uses, which double their demand for water use by 2020.

In 1990, with average water conditions, the SWP delivered 1,219.4 taf or about 57 percent of the San Joaquin service area's water supply. SWP deliveries will be reduced to 991.3 taf by 2020, which is the major contributing factor to the expected loss of acreage in agricultural production. The service area has not identified alternative water sources to replace this drop in SWP deliveries. There will be some expansion of ground water pumping in certain areas, but the current groundwater overdraft of 89 taf will be eliminated. Overall, the service area is expected to have an 11 percent shortage in meeting water demand by 2020. Under average year conditions, shortages increase from 6 taf currently to 224.7 taf, while drought year shortages see an increase from 178.7 taf to 401.5 taf (a 19 percent shortfall).

- *Southern California Service Area*

The Southern California service area is by far the largest both in land area and population, encompassing almost all of Los Angeles, Orange, Riverside, San Bernardino and San Diego counties, with portions of Kern, Imperial, and Ventura counties. There are twelve SWP contractors in this service area, with the Metropolitan Water District of Southern California (MWD) being the largest.

This highly urbanized service area is the major population center of California, with 18,400,100 people in 1994, or over 57 percent of the State's population residing in seven counties Southern California is also the State's leading economic region, despite setbacks in the recent recession.

Population and economic growth in this area over the last fifty years has been dependent on importing water from outside the area. Recent cutbacks in the availability of Colorado River water and water from Mono Lake have changed the water supply picture for the region. MWD is currently proposing a major new water storage dam and is evaluating other water supply and management options.

The population in this area is expected to increase by 37.2 percent over the 1990 to 2010 period, which is slightly below the State average of 41.5 percent. However, this represents half of the total number of new people in the State during this period. Significant growth in population and households is expected in the eastern portions of Riverside, San Bernardino and Imperial counties.

The economy of this region is broadly diversified, with the largest concentration of manufacturing in the State, particularly in the aerospace and high-technology industries. Other major industries include shipping, international trade, oil production and refining, movies and entertainment, fabricated metals, chemical production, food processing and paper production. The region is also a major center for finance, insurance, real estate, and tourism. There are a number of military bases in the region, but several have been closed in recent years, or are scheduled for closure or cutbacks. In addition, the region also has substantial agricultural production despite the high level of urbanization.

The southern California region suffered significantly during the recent economic recession with major cutbacks in federal defense spending and related contracts to the aerospace and electronics

industries. Major job losses in most of the economic sectors were experienced in all the counties during 1991 through 1993. The start of 1994 saw the beginning of a slow recovery with modest job increases throughout the area.

Employment projections show a steady and moderate increase in the number of jobs through 2010, with the strongest sectors being retail trade and services. Manufacturing will not maintain as large a share of the employment market. Employment growth will be greatest in the counties of Riverside and San Bernardino.

Within the service area, urban water uses represented 73 percent of the water demand in 1990, while agricultural water demand was 24 percent of the total. This area represents over half the water demand within the SWP territory. However, because urban water uses statewide are low relative to agricultural uses in the California, total Southern California service area water demand represents only 12.2 percent of total statewide water demand.

Projections for the Southern California service area average year water demand in 2020, show urban demand increasing to 95 percent of total demand as population grows by about 10.2 million. Agricultural demand is reduced to 9 percent of the total demand as more area is given up to development.

Water supplies in 2020 are expected to increase to 5,240.6 taf from 5,159.7 in 1990, representing 81 taf of additional water. The service area loses 587.3 taf of Colorado River water during this period, while groundwater yield increases 50 taf and SWP supplies increase 761.5 taf. However, demand has increased 1,757.6 taf from 5,162.4 taf to 6,920 taf. As a result water shortages increase from 2.7 taf in 1990 to over 1556.9 taf in 2020. The water shortages are even more severe in 2020 (2,688 taf) under drought year conditions.

15.3 Environmental Impacts/Consequences

Socioeconomic impacts are evaluated from two perspectives in relation to the proposed ISDP project and alternatives. First, impacts are identified within the ISDP project/study area that result directly or indirectly from the construction and operation of the proposed ISDP facilities. Secondly, potential socioeconomic impacts within the SWP service areas are discussed that would result from the delivery of additional water in connection with the ISDP facilities. The discussion of socioeconomics impacts in this section is also related to the discussion on growth inducing impacts in Chapter 22.

15.3.1 Significance Criteria

Based upon guidance from the CEQ's NEPA Regulations, the CEQA Guidelines and CEQA court decisions, the criteria used for determining if significant impacts will result from the physical changes created by the proposed project based on socioeconomic impacts were: (1) are there major additions or disruptions to economic activity and income caused by the construction and operation of ISDP facilities; (2) are there major social changes in the nature of communities and their ability to function in the proposed project area; or (3) are there major changes in the

level or patterns of growth in population, housing, income or employment created by the delivery of additional SWP water.

15.3.2 ISDP Project/Study Area Impacts

- *Short-term Construction Impacts*

The proposed ISDP facilities involve six components, each to be constructed over an 18 to 36 month period. The components will be constructed over a five year period as shown below:

Location	**Start**	**Finish**
Old River Fish	6/1998	1/2001
Middle River Flow	6/1999	1/2001
Old River Flow	6/1999	1/2002
Grant Line Flow	6/2000	6/2003
Dredge Old River	6/1998	10/2001
Northern Intake	6/1998	6/2001
Total Span of Time	6/1998	6/2003

The total estimated cost is $53..9 million. The project would create a number of short-term construction jobs and bring additional income into the surrounding economy for up to five years. Some of the materials and equipment used for construction also would be purchased or leased locally.

Project Costs. DWR staff have prepared the estimates of project costs, labor costs, duration of construction and number of workers for each component of the ISDP as shown in Table 15-1.

Employment. Construction of the six project components will be staged over a five year period as shown above. As a result, there are only a few months in the third year when work will take place on all the six components at once. Table 15-1 shows the average and maximum number of persons employed each month, as well as the total labor costs, for each project component. The following shows the average number of full year employees (prorated) with all the project components over the five construction years:

Year 1	44
Year 2	69
Year 3	76.3
Year 4	30
Year 5	23

The maximum number of people working at any time would be 400 people, but this is not likely to occur given the staggered construction schedule.

The contractor hired by DWR to construct the ISDP would be selected through a Statewide competitive bid process. There are a number of qualified firms located in the study area that have worked on previous DWR and CVP facilities, which have the potential to win the contract. However, other contractors from outside the area would also be eligible for consideration.

The contractor would be able to hire the large majority of construction workers from the study area labor market. An adequate pool of union labor exists in this area that has worked on jobs of a similar nature. Some workers may be hired from the greater Bay Area or Sacramento for specialty jobs, such as steel work.

Housing. The large majority of construction workers hired for ISDP would be within commuting distance to the job sites and only a small number would need to find temporary housing. Many short-term construction workers stay in motels or bring their own camping/recreational vehicles. However, even if some portion did rent apartments or houses, this would not create a significant impact upon the housing market given the current vacancy rates of between 4.1 percent and 7.2 percent in the study area.

A conservative analysis would be to assume that 25 percent of the maximum 400 workers, or 100 employees, would need to find temporary housing. Within the socioeconomic study area, there are approximately 14,500 housing units vacant. The rental of 100 units represents less than one percent of the units available. The rental of these units would provide a small amount of additional income to owners in the study area.

Income. Salaries for construction workers on ISDP would range from $40,000 to $100,000 annually, with an average of $60,000. These are well paying jobs on par and above the average median household and personal incomes within the three county study area. It is estimated that labor costs would be about $12.4 million over the five-year construction period.

Assuming again that 75 percent of the workers are hired within the study area, approximately $8.5 million in additional income would be earned within the study area. The local purchase of goods and services would in turn create a small indirect effect on income in the study area.

In addition to construction worker income, ISDP would result in the leasing of equipment and purchase of materials within the study area. The costs of materials for the project would be approximately $38 million. Assuming that 50 percent of this amount is spent within the study area, that would represent an additional $19 million in gross sales with the resulting direct, indirect and induced affects on income.

Disruption of Businesses. During the construction phase of ISDP, a number of small businesses near the project sites would be affected by construction activities including: 1) heavy truck traffic on the access roads; 2) obstructions to boating traffic; and, 3) noise from equipment operation and other construction activities. According to DWR staff, the roads in the area would

remain open at all times and boating traffic would be able to get through the main rivers and channels at all times during construction.

A number of the facilities are discussed in the Recreation chapter (see Chapter 13), including the Lazy M Marina, Dos Reis Park, Mossdale Crossing Park, Mossdale Marina, Mossdale Trailer Park, Union Point Marina, Del's Boat Harbor and Tracy Oasis Marina. In addition, the Discovery Bay Yacht Club is a short distance from these sites, but would be affected more by the temporary closure of the channel outlet, which is the primary access to the Delta from the Club.

Eight business owners were contacted in August 1994, provided information on construction activities, and asked a number of questions about the potential impacts to their business. Two of the businesses did not respond to the questions. The results of this informal survey show that six businesses are concerned about the project and expect to experience some decrease in business due to the construction activities. Based on the information available at the time on construction plans, the owners of Discovery Bay Yacht Club and Del's Boat Harbor felt construction activities would result in several temporary closures of their businesses totaling more than two weeks in duration. These same owners and the owners of the Lazy M felt that the noise and access problems associated with construction would have a major impact on their business. Del's and Lazy M estimated losses in retail sales of $10,000 or more. The other businesses all believe the construction activities would reduce their business somewhat and three estimated retail losses of under $1,000. Others could not provide an estimate of the dollar impact.

While construction activities may disrupt normal business to some degree, area restaurants may also gain some additional business from the ISDP construction crews over this same period. The disruption to businesses during construction could potentially cause temporary closures and moderate economic impacts, the project is not expected to result in any permanent closure of businesses.

Table 15-1

ISDP Construction Costs and Labor

Project Component	Total (1) Costs (Mil $)	Labor Costs (Mil $)	Construction Duration in Months	Average Persons Employed per Month	Maximum Employed in any Month
Clifton Court Forebay Intake	$17.5	$3.9	36	26	70
Old River Channel Dredging	$3.4	$1.0	28	7	10
Old River Fish Control Structure	$5.7	$1.3	30	11	80
Grant Line Canal Flow Structure	$15.6	$3.5	36	23	90
Middle River Flow Structure	$3.9	$.85	18	11	50
Old River East of DMC Flow Structure	$7.8	$1.8	30	14	100
Total	**$53.9**	**$12.35**			**400**

(1) Total costs are stated in 1995 dollars and represent labor/materials for construction only.

Displacement of Agricultural Production. The ISDP would involve dredging approximately one million cubic yards of material from a 4.9 mile reach of channel along Old River just north of the Clifton Court Forebay. The disposal of the dredged material would occur at one of three alternative sites. The first site involves two settling ponds on Victoria Island where the material would be deposited by hydraulic pump and then dried, reworked and used as needed. The two settling ponds would be in operation over the three-year period of Old River dredging. This would involve the use of approximately 600 acres of land currently used to grow asparagus.

Following completion of the dredging operations and removal of the dredge material from Victoria Island, the property would be restored to allow its use for agricultural production again. This restoration would take up to five years to complete (possibly less). This assumes no contamination to the soil occurs from the settling ponds that would inhibit the ability to grow crops.

The proposed project would take 600 acres on Victoria Island out of asparagus production for between six to eight years, resulting in a loss of income to the growers and related agricultural processors/wholesalers. According to the Department of Finance, *Statistical Abstract 1993*, asparagus production in California for 1992 had a total value of $83,497,000. The average production per acre was 29 cwt. (hundredweight) and the average price was $84.70 per cwt. Based on these numbers, 600 acres would produce 17,400 cwt. a year with a gross value of approximately $1.5 million annually (before deducting costs of production). Assuming the land is not back in production for a full eight years, this would result in a loss of about $12 million gross income to the farmers over this period. In addition, there would be some related losses to other businesses, which may be involved in packaging, processing or distributing asparagus.

The second dredge disposal site at Byron Tract involves approximately 360 acres of agricultural land in two locations, where material would be hydraulically pumped into settling ponds. This land is currently in agricultural use with some asparagus, while production on other acreage varies form year to year between corn, alfalfa and oats. The same types of losses in production similar to Victoria Island would occur here during the three years of dredging operations and up to five years after during restoration of the property.

The removal of agricultural land from production for up to eight years at either the Victoria Island or Byron Tract sites for use as settling ponds represents a significant unavoidable adverse impact.

The Twitchell Island disposal site involves acreage along the backside of the levee, which is not in agricultural use. Farming does take place on the adjacent land, but the disposal operation would not affect the agricultural production. This would be a less-than-significant adverse impact.

Summary. No significant adverse impacts to existing businesses in the project area are expected to result from the short-term construction phase of ISDP, although there would be some disruption to local marinas and restaurants. At the same time, there would be a number of benefits to the surrounding communities.

There would be a significant adverse impact due to the loss of agricultural production for up to eight years on either Victoria Island or Byron Tract due to dredge disposal at these sites. This can not be mitigated to a less-than-significant level in the short-term, however, the land will be returned to pre-construction conditions in the future.

In addition, impacts on minority and low-income communities were analyzed in compliance with federal Executive Order 12989. The proposed ISDP facilities would be consistent with the order, since project facilities are not in the immediate vicinity of any minority or low-income communities.

- *Long-term Impacts*

Project Operations. Operation and maintenance costs for the six components of ISDP are estimated to run approximately $365,000 annually (1994 dollars). DWR does not anticipate the need for any additional full-time staff in the district office to operate the new structures. However, seasonal staff may be needed to operate cranes proposed to move boats around the barriers during the boating season when the barriers are closed.

Project operations and changes in water quality and flows resulting from ISDP facilities will have minimal impacts on growth and development in the project and study area. At the same time, the project is not likely to affect the basic nature of existing communities or lifestyles in the area. The Delta has a long history of changes and reconfigurations of the levees and other water facilities.

The delivery of additional water to SWP contractors is discussed under the section on service area impacts.

Disruption to Boating Traffic and Potential Business Impacts. ISDP barriers on Old River (in two locations), Grant Line Canal and Middle River would span the entire width of the waterways. Each barrier would be closed for several months at various times in the spring, summer or fall (see dates of closure in Project Description, Section 2). The barriers would be open at other times of the year. DWR has proposed installing cranes, ramps or boat locks at each of the barriers to help boats get around the barriers during the months of closure. These waterways are popular recreational boating locations, which also bring substantial business to the marinas and restaurants in the project area. DWR conducted a boating survey over four years at the barrier locations to determine the level of usage and the types of boats found in these waterways (a summary of the survey is contained in Recreation, Chapter 13, and the entire Boating Survey is found in Appendix 7).

In addition, an informal survey of boaters along these stretches of the waterways was conducted in August 1994, that included 41 boat operators. The questions in this survey asked boaters where they do their boating and what effects the barriers might have on their normal boating activities. Over half of the respondents indicated they would not bother using the methods proposed by DWR for transporting their boats over the barriers. These operators indicated they would rather go to a different area of the Delta or to a completely different location (other lakes or the Bay) to do their boating.

Based on this information it appears that the barriers could reduce the boat traffic in these waterways during these periods by a substantial amount, potentially as much as 50 percent. This seasonal reduction in boaters could have economic consequences for the marinas and restaurants in the area. As discussed in the above section on construction impacts, there are a number of small businesses located near the barriers and the proposed intake that would be affected. A major reduction in the accessibility of customers to these businesses during the spring, summer or fall season could have effects on retail sales for several of the marinas and restaurants.

Based upon these estimates, the seasonal closure of the barriers would have significant adverse economic impacts on the small businesses located nearby. However, mitigation measures are proposed to alleviate these identified impacts to a less-than-significant level.

Summary. There are significant adverse impacts caused by the construction and operation of the barriers (i.e. closure of the barriers during portions of the year) that crease significant economic impacts for local businesses.

In addition, impacts on minority and low-income communities were analyzed in compliance with federal Executive Order 12989. The proposed ISDP facilities would be consistent with the order, since project facilities are not in the immediate vicinity of any minority or low-income communities.

15.3.3 Impacts To SWP Service Areas

- *Short-term Impacts*

The short-term construction phase of ISDP would not have any effects on the SWP service areas, as water deliveries would be unaffected during this time.

- *Long-term Impacts*

Additional Water Deliveries. ISDP would increase water deliveries by a relatively small amount to some of the SWP contractors receiving water through the Banks Pumping Plant. Under 1995 existing conditions, an average annual 46,000 af of additional water would be delivered. However, to determine the maximum impact, DWR also modeled future demand with full build out of the SWP (Table 15-2). The total increase in SWP water deliveries with ISDP would be 125,000 af, representing a 3.8 percent increase over deliveries without ISDP. The largest

increases would occur in the San Joaquin and Southern California service areas, making up 93 percent of the total SWP additional water deliveries. San Joaquin would receive an additional 29,000 af, while Southern California would receive 87,000 af more with ISDP.

In the Southern California service area, additional water supplies are likely go primarily to urban uses. Given expected shortages in water supplies, additions from the SWP may in fact partially replace losses of current water supplies from the Colorado River and Mono Basin. For a conservative analysis however, it could be assumed that all the additional water would go to new population growth. With a 1990 applied per capita water use of 0.236, the 87,000 af of ISDP additional water delivery could support up to 368,644 new people in the Southern California service area. This would in turn mean approximately 124,964 new households. However, the population increase that could be attributed to ISDP represents only 3.6 percent of the total 10.2 million new people expected to be living in Southern California by 2020. This is a less-than-significant increase in population and growth.

There would be less-than-significant impacts in the other areas as well. The 29,000 af additional water for San Joaquin service area would go largely to agricultural uses and to help reduce groundwater overdraft. Additional water would go largely to urban uses in the other areas with the North Bay service area receiving just 2,000 af of additional water, the South Bay receiving 6,000 af, and the Central Coast only 1,000 af.

15.4 Mitigation Measures

15.4.1 Project Area Construction Impacts Mitigation

Disruption to Businesses. The construction activities may adversely affect access to the small businesses located near the ISDP facility sites. It is expected that the barriers will cause less-than-significant impacts, which will be partially offset by additional business from construction workers. However, to help mitigate any potential impacts DWR will do the following:

- Consult local businesses when the detailed construction plan and schedule is prepared to help minimize disruptions.

- Implement enhancement measures that will support recreational uses in the project area. This would include activities such as: 1) providing advertising for area businesses and attractions, through brochures and newspaper ads; 2) prepare a public information program to help familiarize boaters with the purpose of the barriers and the construction schedule; 3) sponsor special weekend and holiday events in the location to attract boaters to the area during times when the barriers are closed; and, 4) maintain a telephone information hotline and establish a homepage on the internet with information from the other listed activities.

Table 15-2

Average Annual Water Deliveries to SWP Contractors

2020 Future Demand and Full Build Out of the SWP

(Thousand Acre Feet)

SWP Contractors	Without ISDP With Accord (Run 411)	With ISDP With Accord (Run 414)	Increase	% Change
Total Banks Export for SWP (Without Wheeling)	3162	3282	120	3.8
SWP Delivery Summary	3164	3289	125	4.0
North Bay	51	53	2	4.0
South Bay	142	148	6	4.2
San Joaquin	791	820	29	3.7
Central Coast	34	35	1	2.9
Southern California	2076	2163	87	4.2

Source: DWRSIM model runs

Disruption to Agriculture. DWR would need to lease the land on Victoria Island (or Byron Tract) that is designated for two settling ponds during the construction period. Upon completion of the construction phase and removal of the dredged materials, the land would be restored to its original state and made available for agricultural production once again.

15.4.2 Project Area Long-term Impacts Mitigation

Impacts on Delta Businesses. The operation of the barriers will result in a decrease in boating and recreational uses in the area, and as a result, decrease access to restaurants and marinas. It is expected that this will be a less-than-significant impact. However, to mitigate and potential impacts, DWR will do the following: 1) provide advertising for area businesses and attractions through brochures and newspaper adds; 2) prepare a public information program with brochures, presentations to boating organizations/clubs, and advertising to help familiarize boaters with the purpose of the barriers, when they are in operation and the facilities for moving boats around the barriers; 3) sponsor special weekend and holiday events in the location to attract boaters to the area during times when the barriers are closed; and, 4) maintain a telephone information hotline and establish a homepage on the internet with information from the other listed activities.

15.5 Comparative Evaluation Of The Alternatives

15.5.1 Enlargement Of Clifton Court Forebay, Construction Of Two Intake Structures, Increased Export Capability, And Construction Of Permanent Barriers

This alternative is the original South Delta Water Management Program (SDWMP). This project would result in a number of socioeconomic impacts due to short-term construction impacts and long-term operations. Some of these impacts would be considered significant.

The SDWMP's $252 million construction cost is significantly higher than the $49.6 million cost of ISDP. In addition, the $252 million construction figure does not include the costs of hauling and disposing of dredge materials from the channel enlargement excavation; however, it is expected that some of this material would be used for the channel levee setback, the new dam embankment or other portions of the project requiring fill material. The $252 million figure also does not include annual operating costs, which are expected to be approximately $100,000 a year.

On the positive side, the higher construction cost of SDWMP would generate more indirect and induced income in the project and study area by virtue of the income generated from local purchases of materials and the employment of local labor. There would be a peak labor force of 200 workers during the five-year construction period.

During construction, there could be significant disruption to local businesses due to: the realignment of Highway 4 over a two-to three-year period requiring a detour route and delays to motorist of at least 5 minutes per trip; an estimated 475,000 truck trips over a five-year period or 95,000 truck trips per year, which would slow traffic and cause delays; noise and aesthetic impacts from heavy equipment operations and the substantial truck traffic along roads over a

five-year period; and, portions of the river and channels would be closed off to build intakes and barriers; this would be done in two steps so that at any time half of a river or channel would be open. This could discourage recreational boaters from taking these water routes and would decrease business for water-related restaurants and boat docks, in the same manner as discussed in the preferred alternative.

The enlargement of Clifton Court Forebay would result in the permanent inundation of an additional 2,900 acres of land, while another three acres of agricultural land would be retired at the Old River barrier site. Some of this land is currently in high value agricultural production, e.g. asparagus crops on Victoria Island. Other agricultural land is used for seasonal crops, such as grains, field crops, vegetables and alfalfa.

The enlarged forebay would allow for additional water storage and would accommodate maximum pumping capacity at Banks Pumping Plant. This increase in water pumping would be the same as the preferred alternative (ISDP), which in turn would increase deliveries to SWP contractors by the same amounts as ISDP.

The seasonal barriers are the same as proposed in ISDP and would involve the same potential problems discussed for ISDP.

The short-term construction impacts and the long-term impacts of operations which may disrupt local business should be mitigated in the same manner proposed for ISDP.

DWR would need to purchase or lease the land needed for the enlarged Clifton Court Forebay, with appropriate agreements with owners on the loss of agricultural production. It may be possible to find replacement property that could accommodate the same type of crops.

15.5.2 Reduction Of CVP/SWP Exports And SWP Management Or Reduction Of Demand For SWP Water

This alternative would create significant long-term socioeconomic impacts for agricultural, municipal, industrial and residential water users in California. Under this alternative, SWP pumping from the Delta (Banks Pumping Plant) would be reduced from an average flow of 3,600 to 5,000 cfs during April through September, down to a maximum flow of 500 cfs over the same period. This represents an 86 percent and 90 percent decrease in pumping and a corresponding reduction in water deliveries to SWP contractors for half the year. CVP pumping also would be reduced by 69 percent to 75 percent during these same months at the Tracy Pumping Station. The spring and summer months represent the primary irrigation season in the south Delta and Central Valley, as well as the peak urban water demand period.

DWR estimates that on an annual basis water deliveries by the SWP and the CVP under this scenario would be reduced by 1.1 maf in critical years and between 1.9 and 2.2 maf in dry and below-normal years. These are general estimates based on extrapolations from operational model runs for ISDP. Some of the unknowns at this time include: 1) how water pumping and delivery in other months might be adjusted to make up for losses during the April through

September months; and, 2) how water storage facilities could be operated from year-to-year to accommodate water demands during the reduced pumping period.

However, such dramatic reductions in water supply would likely result in severe hardship for many farmers and urban users if substantial reductions in water demand cannot also be achieved. The second portion of this alternative involves implementing certain demand-side practices. DWR's Bulletin 160-93 identified water conservation/demand management measures for both urban and agricultural users that could be implemented over the next twenty years. These have been divided into: 1) Level I practices, which represent the most cost-effective and technically easy-to-implement demand management practices; and, 2) Level II practices, which are less well-defined and need additional study. Savings in water use from Level I practices have been identified and plans for implementing these practices are in place or being developed. The implementation of Level I practices has already been considered in demand forecasts for the next twenty years and as a result cannot be considered as an alternative to ISDP.

Thus, this alternative proposes to compensate for the decrease in pumping by implementing Level II demand management practices. Some of Level II practices are speculative and difficult to assess at this point given the available data to measure feasibility, effectiveness and cost. However, a number of potential impacts from these measures can be discussed:

It is likely that many of these measures would be less cost-effective than Level I practices (i.e., it will cost more per unit of demand reduction). Level I implements those practices that are readily available, proven and highly cost-effective.

However, even where Level II practices may turn out to be highly cost-effective, they are not technologically feasible at this time or they carry other environmental/health concerns that must first be resolved (e.g. use of recycled water or brown water).

Many of the urban user management practices would require significant changes in social attitudes and personal sacrifice, which make it difficult at this time to gage their potential success. For example:

> Level II demand management practices may require rate structures for urban users that penalize non-essential water uses (e.g. swimming pools, decorative fountains, etc.) or, rates which fall more heavily on commercial/industrial users.
>
> Demand side management practices which rely on economic incentives for voluntary compliance could have wide ranging economic repercussions and uncertain success.
>
> Other suggested measures which require the installation of water regulating devices for businesses (e.g. car wash businesses) could cause marginal operations to fold or could significantly increase the retail cost of goods and services.

Agricultural users would most likely be hardest hit by water delivery cutbacks and Level II management practices. For example:

Many irrigation efficiency proposals require expensive capital investments that may not be practical for smaller operations.

Limited availability and increased costs for water may lead farmers to: 1) reduce their acreage in production; 2) switch to lower value crops; or, 3) in extreme cases, to cease agricultural production and sell their land.

DWR should continue to work with urban and agricultural water users and public interest groups in defining the appropriate Level II demand management practices that can be reasonably implemented. This would include evaluating economic impacts of various measures and finding adequate solutions to negative affects (e.g. funding mechanisms for required capital investments or technical assistance to small/marginal businesses).

Demand side management practices should be selected and funded based on the cost-effectiveness of the measures, i.e., based on factors such as: 1) the greatest decrease in water demand for the dollar spent; 2) the ease of implementation (with as little administrative cost and oversight possible); 3) technological feasibility; 4) social acceptance and chances for success, and, 5) as few negative economic impacts as possible.

15.5.3 Modification Of CVP/SWP Exports, Consolidation Of Agricultural Diversions, Extension Of Existing Agricultural Diversions, And Increased Pumping At Harvey O. Banks Up To 10,300 cfs

There are construction and long term impacts related to consolidating and extending diversions that are not associated with ISDP: 1) substantial dredging is needed along Old River, Middle River, and Paradise Cut near the location of the consolidated pumps and other agricultural diversions where inverts will be lowered and fish screens installed; and, 2) construction of the consolidated pumps, reservoirs, pipe distribution systems, and settling ponds; and, invert/fish screen installations.

The construction activities associated with this alternative would not create disrupt local marinas and restaurants along the water, as boating traffic would not be inhibited to any significant degree. The $67 million costs of construction will have direct and indirect benefits for the local economy through labor income and local purchases of materials and equipment. This is a less-than-significant impact.

The dredging operations for associated with this alternative will take an additional 1,080 acres of agricultural land out of production for a period of up to eight years. This represents a significant unavoidable adverse impact.

These are long term impacts related to the operation of the regulated reservoirs at each of the ten consolidated pump sites. The reservoirs will take 408 acres of land out of agricultural production resulting in a permanent loss of income. This represents a significant unavoidable adverse impact.

In addition, the costs of operation and maintenance for the reservoirs, consolidated pumps, and related distribution systems would be considerably higher than the existing individual agricultural pumps. This is a significant unavoidable adverse impact.

15.5.4 ISDP Project With An Additional Clifton Court Forebay Intake At Italian Slough

This alternative would include building an additional intake on Italian Slough that would be run independent of Clifton Court Forebay with water bypassing Clifton Court Forebay. During the time that water was being pumped from Italian Slough, Clifton Court's intake to the Aqueduct would be blocked by a temporary rock barrier.

The impacts for this alternative would be the same as those described for ISDP with the following additional impacts:

Italian Slough Intake would cost approximately $3 million to build with a maximum of 30 to 40 construction workers over an 18 month period. This would provide additional employment and income to the area.

Construction methods would be similar to those of the new Clifton Court Forebay intake proposed as part of ISDP. This would result in additional noise and aesthetic impacts to surrounding businesses, residents and recreational visitors in the area. There may also be temporary delays on surrounding roads due to truck traffic and diversion of recreational boaters during some phases of the construction.

The same long-term impacts associated with ISDP would be part of this alternative plus the following additional impacts:

Operation and maintenance costs for this alternative would be much higher than for ISDP because of the costs of building and taking down the temporary rock barrier at Clifton Court Forebay. It is not clear at this time how frequently the Italian Slough intake would be utilized, whether on an annual basis, more than once a year or only in certain years. The frequency would depend in part on the tide conditions in Italian Slough and how fish protection goals are defined.

The rock barrier construction and removal periods would each run 4 to 6 weeks. In between, the rock would be stored on a barge in Italian Slough. There would be noise and aesthetic impacts, as well as inconveniences, due to the operation of heavy equipment affecting the surrounding businesses, residents and recreational visitors. The frequency of this operation would affect the severity of the impacts.

The installation of an Italian Slough intake and the permanent docking of the rock barrier barge would hamper the use of the slough for water skiing and boating. This may also reduce the number of recreational boaters frequenting the local restaurants and docks over the long term.

These additional impacts could add to the potentially significant impacts on local businesses as discussed for ISDP.

It is expected that this alternative would result in the same annual export of water from the Banks Pumping Plant and delivery to SWP contractors as ISDP. However, it is not clear how monthly flows might change with this alternative, given that the amount of water available to pump from Italian Slough is considerably lower than that from Clifton Court Forebay (a maximum of 1,000 to 3,000 cfs for the slough vs. 10,000 cfs for the forebay). It is also not clear if water pumping would be shut down during the construction and removal period of the rock barrier (4 to 6 weeks each time). This could create uncertainties for some water contractors if the lower flows occurred at critical times of the year for water use.

Mitigation for both the short-term construction impacts and long-term operation impacts on the retail sales of local businesses would be the same as described for ISDP.

Long-term operation impacts on SWP contractors through variations in pumping levels and water delivery with the use of Italian Slough Intake could be mitigated by establishing a protocol for handling this event. This protocol might include: 1) consulting with SWP contractors in advance to schedule the timing of Italian Slough pumping; 2) providing a certain number of days or weeks warning to the SWP contractors before reducing pumping; 3) arranging for additional water storage to accommodate temporary decreases in deliveries or, 4) helping to arrange temporary substitute water sales or exchanges (e.g. coordinating with the CVP or with wholesale/retail purchasers).

15.5.5 ISDP Without The Northern Intake, And With An Expanded Existing Intake

This alternative would be very similar to the proposed ISDP in terms of providing an additional point of water diversion into Clifton Court Forebay. The only difference would be this alternative proposes enlarging the existing intake on the southeast side of the forebay versus constructing a second intake on the northern end. This alternative would provide the same benefits as ISDP of increased operational flexibility with the same levels of additional water exports and deliveries to SWP contractors. In order to operate the enlarged intake at the desired diversion flow of 30,000 cfs, substantial dredging to increase flows on Old River and West Canal would be needed.

Costs were not available for this alternative, however, it is estimated that construction of the enlarged intake would require a maximum of 50 to 70 workers over a 30 month period. The impacts of this construction effort would be very similar to those for ISDP.

The impacts of this project would be very similar to those of ISDP. As stated above, many of the local businesses are located on the northern end of Clifton Court Forebay, and as a result would not be as directly affected by this alternative.

The same mitigation proposed for ISDP would be applied to this alternative for both short-term construction impacts and long-term impacts.

15.5.6 No Action (Maintain Existing Conditions)

Under an existing conditions alternative, water deliveries would remain at current levels, continuing to contribute to significant water shortages in most of the SWP service areas, and particularly in the Southern California service area. This situation could lead to a number of different consequences, including:

Cutbacks in certain types of water uses, particularly in future years as water shortfalls increase. This would hit hardest in the agricultural area, through retirement of lands from production, switching to less water-intensive crops, etc.

Increased use of sales, exchange and storage/transfer agreements among water wholesale and retail buyers, with significant increases in the price of water.

Voluntarily implementation by agricultural and urban users of many of the proposed Level II conservation/demand management practices discussed in DWR's Bulletin 160-93.

Water contractors seeking other solutions for long-term water supplies (e.g. new storage facilities, salt-water conversion), which are likely to be more costly and less efficient than the improvements proposed by ISDP.

15.5.7 No Action (Maintain Conditions As They Would Exist In The Future)

Under an existing conditions alternative, water deliveries would remain at current levels, continuing to contribute to significant water shortages in most of the SWP service areas, and particularly in the Southern California Service area. This situation could lead to a number of different consequences, including:

Cutbacks in certain types of water uses, particularly in future years as water shortfalls increase. This would hit hardest in the agricultural area, through retirement of lands from production, switching to less water-intensive crops, etc.

Increased use of sales, exchange and storage/transfer agreements among water wholesale and retail buyers, with significant increases in the price of water.

Voluntarily implementation by agricultural and urban users of many of the proposed Level II conservation/demand management practices discussed in DWR's Bulletin 160-93.

Water contractors seeking other solutions for long-term water supplies (e.g. new storage facilities, salt-water conversion), which are likely to be more costly and less efficient than the improvements proposed by ISDP.